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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,314	02/26/2002	Fumio Isshiki	ASAM.0053	2802

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EXAMINER

GIESY, ADAM

ART UNIT	PAPER NUMBER
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2656

DATE MAILED: 02/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/082,314

Applicant(s)

ISSHIKI, FUMIO

Examiner

Adam R. Giesy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 8, 11 and 14-18 is/are rejected.
- 7) ☒ Claim(s) 9, 10, 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 4, 5, 14, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshida et al. (hereinafter Yoshida – US Doc. No. 2002/0024153 A1) as discussed in the previous office action, mailed on 9/20/2005.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (hereinafter Yoshida – US Doc. No. 2002/0024153 A1) in view of Valster et al. (hereinafter Valster – US Pat. No. 5,296,717).

Regarding claim 1, Yoshida discloses optical head (Figure 3) characterized by a light source formed of an indirect semiconductor laser (element 301 – see also page 4, paragraphs 0040-0042), a lens (element 302) for focusing a light beam from the light

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source onto a medium (309), and a detector (311) for detecting a reflected light beam from the medium. Yoshida does not disclose that the laser contains quantum wells.

Valster discloses a light emitting semiconductor device with an active layer that has a quantum well structure for emitting a light beam (column 6, lines 25-27) and that the quantum well structure is asymmetric (column 6, lines 38-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the disclosure of Yoshida with the quantum well structures as disclosed by Valster, the motivation being to produce a more intense and direct laser beam.

Regarding claim 2, Yoshida and Valster disclose all of the limitations of claim 1, as discussed in the rejection of claim 1 above. Yoshida further discloses that the semiconductor laser has an active layer for emitting a light beam (Figure 2, element 205), and an indirect semiconductor is used for the active layer (see page 4, paragraphs 0040 and 041).

Regarding claim 3, Yoshida and Valster disclose all of the limitations of claim 1, as discussed in the rejection of claim 1 above. Yoshida fails to disclose a quantum well structure.

Valster further that the quantum well structure comprises an active layer and a barrier layer (column 6, lines 21-27 – see especially “Separate Confinement Layers” in lines 24 and 25), and an indirect semiconductor material is interposed between the active layer and the barrier layer (see column 2, lines 15-16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the optical head structure as disclosed by Yoshida with the layering structure and quantum wells as disclosed by Valster, the motivation being to produce a more intense and direct laser beam.

Regarding claim 7, Yoshida and Valster disclose all of the limitations of claim 1, as discussed in the rejection of claim 1 above. Yoshida further discloses that the indirect semiconductor has an active layer structure (Figure 2, element 205), and has an adjacent confinement structure (see page 4, paragraph 0040).

Regarding claim 8, Yoshida discloses all of the limitations of claim 4, as discussed in the rejection of claim 4 above. Yoshida fails to disclose that the material of the indirect semiconductor is of an AlGaP (aluminum gallium and phosphor) group.

Valster discloses an indirect semiconductor structure in which the layers are composed of InAlGaP (see column 6, lines 25-27 - read to be in the AlGaP group).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the optical head structure as disclosed by Yoshida with the layering structure as disclosed by Valster, the motivation being to produce a more intense and direct laser beam.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (hereinafter Yoshida – US Doc. No. 2002/0024153 A1) in view of Chapple-Sokol et al. (hereinafter Chapple – US Pat. No. 5,354,707) as discussed in the previous office action, mailed on 9/20/2005.

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6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (hereinafter Yoshida – US Doc. No. 2002/0024153 A1) in view of Hayashi (US Pat. No. 6,394,655 B1) as discussed in the previous office action, mailed on 9/20/2005.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (hereinafter Yoshida – US Doc. No. 2002/0024153 A1) in view of Momoo et al. (hereinafter Momoo - US Pat. No. 6,741,538 B2) as discussed in the previous office action, mailed on 9/20/2005.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (hereinafter Yoshida – US Doc. No. 2002/0024153 A1) in view of Brown (US Pat. No. 5,625,729) as discussed in the previous office action, mailed on 9/20/2005.

Allowable Subject Matter

9. Claims 9, 10, 12, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

See reasons for indicating allowable subject matter in the office action which was mailed on 4/4/2005.

Response to Arguments

10. Applicant's arguments filed 12/20/2005 have been fully considered but they are not persuasive.

Applicant, on page 6 of the response filed on December 20, 2005, argues that Yoshida does not disclose an indirect semiconductor laser having an asymmetric quantum well structure. The Examiner agrees. Applicant also argues that Valster

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(Valster et al. – US Pat. No. 5,296,717) does not disclose an asymmetric quantum well structure. Examiner respectfully disagrees. Valster discloses making the quantum well layer thicker because of a disorderly distribution – Examiner interprets this to mean that the distribution is asymmetrical.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Suzuki et al. (Jpn. J. Appl. Phys. Vol 41 [2002] pp.2701-2706) discloses a fabrication method and motivation for including an asymmetric quantum well structure in an optical device.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

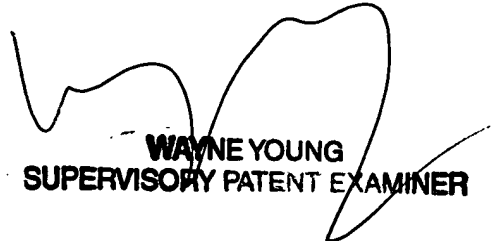
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam R. Giesy whose telephone number is (571) 272-7555. The examiner can normally be reached on 8:00am- 5:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne R. Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ARG 2/8/06



WAYNE YOUNG
SUPERVISORY PATENT EXAMINER